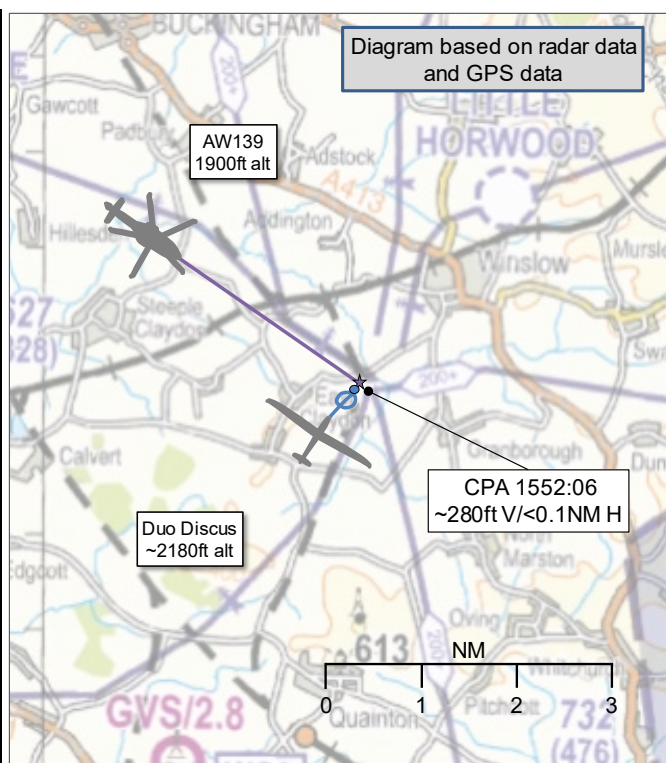


AIRPROX REPORT No 2025083

Date: 14 May 2025 Time: 1552Z Position: 5156N 00055W Location: 5NM SE Buckingham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Duo Discus	AW139
Operator	Civ Gld	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Establishing contact
Provider	N/A	Luton INT
Altitude/FL	~2180ft	1900ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White	NR
Lighting	Nil	NR
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	2500ft	NR
Altimeter	QNH	QNH
Heading	Circling	NK
Speed	50kt	~139kt
ACAS/TAS	FLARM	TCAS II
Alert	None	None
Separation at CPA		
Reported	30ft V/0m H	200m V
Recorded	~280ft V/<0.1NM H	



THE DUO DISCUS PILOT reports that following several right 360° thermalling turns at 45° bank, it became clear the core of the thermal was to the left of their position. They reversed the turn to a 45° left turn and, as they reached around a 45° bank, they saw the helicopter coming directly towards them, just below and co-located in a horizontal plane. It was first seen off the left wing during the turn and approximately 30-100ft below by both P1 and P2 at same time. The helicopter pilot took no obvious avoiding action before or after the near miss. The helicopter appeared to have been tracking approximately directly at the edge of their turn radius when originally thermalling. This was an unusually close near miss from a gliding-on-power perspective. At the time of the Airprox, they were listening out on the Dunstable Competition deconfliction frequency. By the time they saw the helicopter it was too late to take avoiding action in the glider as it was seen nearly directly underneath, in the direction of the current turn about 1sec before 0m horizontal separation.

The pilot assessed the risk of collision as 'High'.

THE AW139 SAFETY OFFICER reports that their crew had already been made aware of the increased glider activity on this flight. As a result, they noticed the glider in question, [C/S] which was moving from right-to-left in the direction of flight, at an altitude of approximately 150–200m higher, and maintaining a constant flight direction. As the flight level of the AW139 was about 200m lower than the glider and the intention was to cross behind it, the crew did not feel pressured to change course at any time. They were below the glider and crossed behind it and there was absolutely no danger from their crew's point of view. The glider also maintained their flight path and did not fly any evasive manoeuvres. They did not receive a TCAS warning, so assumed that the glider either did not have a transponder, or it had been switched off.

THE LUTON INTERMEDIATE CONTROLLER reports that this is a retrospective report that was not reported at the time of occurrence, however, they believe the following happened: [AW139 C/S] was in

the process of calling onto frequency at 1551, they issued a Basic Service at 1552:08. The Airprox reportedly occurred between the AW139 and a glider, which was not in communication [with the controller]. There was a primary contact which was passing behind the AW139 at the time the Basic Service was issued. The pilot of [the AW139] did not mention an Airprox or any proximate traffic whilst on frequency.

The events described have not been checked for accuracy against the appropriate radar and/or RTF recordings.

Factual Background

The weather at Luton Airport was recorded as follows:

METAR EGGW 141550Z AUTO 03013KT 360V060 9999 NCD 18/08 Q1022=

Analysis and Investigation

NATS Investigation

The Luton Intermediate and Final Director positions were being operated in a bandboxed configuration (GW APP). The pilot of [the AW139] called onto frequency with the GW APP controller at 1551:07 (all times UTC), the GW APP controller issued squawk 4670 and the QNH of 1022hPa, the pilot read this back and passed the aircraft details and routing; the pilot did not make a request for any type of service.

The GW APP controller informed the pilot that they were identified and issued the pilot of [AW139] with a Basic Service at 1552:06. The GW APP controller then confirmed the pilot's intention to remain outside controlled airspace and subsequently confirmed that the pilot would like to be transferred in turn to Heathrow Radar. There were a number of further transmissions to and from the pilot, no reference was made to an Airprox at any time.

The pilot of [the Duo Discus] was not in receipt of a service from any LTC sector.

The notification of the Airprox from UKAB included a time and Lat/Long position. [The AW139] was passing the Lat/Long position coincident with the GW APP controller informing them they were identified and issuing a Basic Service, at 1552:06 (Figure 1).



Figure 1

CAP774: UK Flight Information Services defines a Basic Service as:

'A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities,

conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility.'

The pilot of [the Duo Discus] reported that the Airprox occurred at approximately 2500ft and estimated the vertical distance between the aircraft as between 30ft and 100ft.

As [the AW139] passed the position of the reported Airprox the aircraft was indicating an altitude of 1900ft.

The Airprox occurred when the pilots of the Duo Discus and the AW139 reportedly flew into close proximity whilst operating outside controlled airspace. The Closest Point of Approach reportedly occurred at approximately 1552 and was reported (from the pilot reports) as between 30ft and 200m vertically.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the AW139 could be identified using Mode S data, indicating 1900ft (QNH 1022hPa). The Duo Discus could not be seen on the radar, however, the pilot supplied a GPS track of their flight and from this the tracks of the two aircraft could be compared, and the diagram at the top of the report compiled. Comparing the GPS data with the radar replay gave the CPA at 1552:06 as approximately 280ft vertically and <0.1NM horizontally.

The Duo Discus and AW139 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.¹ If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.²

Comments

BGA

A thermalling glider with a bank angle of 45° will typically complete each 360° turn in 20sec. During this time an aircraft approaching at (for instance) 135kt would cover 0.75NM. The pilot of a thermalling glider must look for aircraft approaching from every direction; although continuous turning facilitates 360° lookout, it also leaves the pilot unsighted in any specific direction for about half the time.

From the point of view of the pilot of the approaching AW139, the thermalling glider would have been alternately head-on and tail-on in the course of every 360° turn, at which points it would be very difficult to see at a distance; but it would also have been more-or-less planform twice every turn, when its 20m wingspan and white surface finish would have made it much more apparent.

The difficulties of sighting another aircraft approaching head-on with no relative motion are well-known. Where possible, many pilots now opt to permanently switch on forward-pointing high-intensity landing lights, even in full daylight, to aid visual conspicuity in this direction.

Almost all glider owners in the UK (including the Discus' owners) have voluntarily fitted proprietary EC equipment that warns of impending conflicts with other similarly-equipped aircraft. Although this system has proved effective at mitigating the risk of Airprox with other gliders, basic installations do not detect aircraft equipped only with transponders or ADS-B-Out (including "Mode S+"), as in this case. However, recent versions of this EC equipment can optionally add a 1090MHz receiver subsystem, and thereby warn of conflicts with transponder and ADS-B-Out-equipped aircraft. Upgrading glider EC hardware to add such a 1090MHz receiver subsystem would provide a useful

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

additional safety barrier in airspace with a high density of transponder or ADS-B-Out-equipped aircraft.

Summary

An Airprox was reported when a Duo Discus and an AW139 flew into proximity 5NM southeast of Buckingham at 1552Z on Wednesday 14th May 2025. The Duo Discus pilot was operating under VFR in VMC not in receipt of an ATS and the AW139 pilot was operating under VFR in VMC and was in the process of establishing a Basic Service with Luton Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, a report from the air traffic controller involved and a report from the appropriate operating authority. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first discussed the actions of the Duo Discuss pilot. They had been thermalling in a right-hand turn before reversing the turn to the left; whilst doing so, they had been surprised to see the AW139 heading towards them. The Board agreed that the EC equipment fitted to the glider could not have detected the helicopter (**CF2**), which had been using a non-compatible system, and the glider's EC equipment also could not have detected the transponder on the AW139. The Board further agreed that, as a result, the glider pilot had not received any prior situational awareness about the proximity of the AW139 (**CF3**). Members discussed why the glider pilot's assessment of the helicopter had been so close, when in fact the helicopter had been around 280ft below, and they put this down to the startle effect of unexpectedly seeing a large helicopter and assessing it as closer than it had been in reality (**CF6**). Members agreed that the glider pilot had probably not seen the AW139 until CPA, because the pilot described seeing the AW139 just off the left wing, making this effectively a non-sighting by the glider pilot (**CF5**).

Turning to the AW139 pilot, members familiar with this area noted that the helicopter pilot had been flying a fairly standard route, would likely have been flying on autopilot and would have chosen to fly at 1900ft to remain clear of GA traffic. The pilot had been in the process of establishing a Basic Service from Luton ATC, and members lamented the fact that the pilot had not requested a Traffic Service earlier, as they may have received Traffic Information from the controller if that had been the case. Once again, the TCAS in the AW139 could not have detected the non-transponding glider (**CF3**) and so the pilot had not received any prior situational awareness about the glider (**CF2**). However, the AW139 pilot had seen the glider and had assessed that their track would take them behind it. Some members wondered whether the pilot had assessed this and had then become distracted by in-cockpit tasks and had not noticed that the glider had reversed their turn, which may have put the glider in their path for longer than first thought. Certainly, members with helicopter experience thought that, although there had been some vertical separation, a small turn of even just 10° to take the helicopter behind the glider would have erred on the side of caution to ensure adequate separation if the glider were to change course unexpectedly, as had happened in this case (**CF4**).

Members briefly discussed the role of the Luton controller. They had not been required to monitor the AW139 under a Basic Service (**CF1**) but, notwithstanding, they had agreed the Basic Service at more or less CPA, and even if the controller had seen the glider on their radar, the window of opportunity for passing timely Traffic Information had passed.

When determining the risk, members considered the reports from both pilots together with the radar and GPS data. They noted that although the glider pilot had assessed the AW139 as extremely close, there had in fact been around 280ft vertical separation and therefore members agreed that there had been no risk of collision. However, given that the glider pilot had not been visual until the last moment, and that the AW139 pilot could have given the glider a wider berth, they thought that safety had been degraded; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2025083			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
3	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
• See and Avoid				
4	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
5	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
6	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment³

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the Luton controller had not been required to monitor the aircraft under a Basic Service.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had received any prior situational awareness that the other aircraft was in the vicinity.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment on the glider could not detect the transponder on the AW139 and the CWS on the AW139 was not compatible with the EC equipment on the glider, which was also not transponder equipped.

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Airprox Barrier Assessment: 2025083		Outside Controlled Airspace				
Barrier		Provision	Application	Effectiveness		
				0%	5%	Barrier Weighting
						10% 15% 20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓			
	Manning & Equipment	✓	✓			
	Situational Awareness of the Confliction & Action	✗	○			
	Electronic Warning System Operation and Compliance	●	●			
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓			
	Tactical Planning and Execution	✓	✓			
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓			
	Electronic Warning System Operation and Compliance	✗	✓			
	See & Avoid	✓	✓			
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used
Provision		✓	●	✗	●	
Application		✓	●	✗	●	○
Effectiveness						